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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,997	09/06/2002	Todd Allen Brown	201-0498	1849
22844	7590	04/01/2004	EXAMINER	
FORD GLOBAL TECHNOLOGIES, LLC. SUITE 600 - PARKLANE TOWERS EAST ONE PARKLANE BLVD. DEARBORN, MI 48126			SCHWARTZ, CHRISTOPHER P	
			ART UNIT	PAPER NUMBER
			3683	

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/064,997

Applicant(s)

BROWN, TODD ALLEN

Examiner

Christopher P. Schwartz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-25 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-25 and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

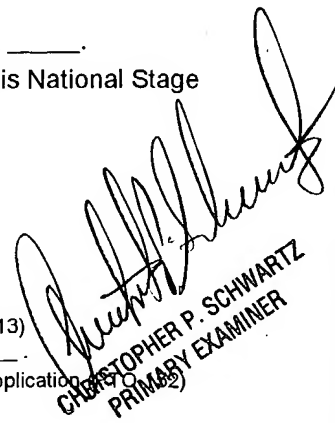
- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____


CHRISTOPHER P. SCHWARTZ
PRIMARY EXAMINER

DETAILED ACTION

1. Applicant's amendment filed 12/22/03 has been received and considered.

Claims 1-14 and 26 have been canceled. Claims 15-25,27-31 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15,16,19,20,22-25,27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kade et al..

Regarding claims 15,25,27,30 Kade et al. discloses a hybrid brake control system comprising regenerative and friction brakes where the friction brakes are applied to at least a first axle and the regenerative brakes are applied to a rear or second axle. See column 3. Also disclosed are a plurality of sensors (see col 2 line 15 and note the pedal sensor and column 4 lines 1-8 and lines 62-67 where sensors are implied to measure the parameters of wheel slip and steering angle). Note the controller at 38. The system of Kade et al. also discloses an ABS system which proportions the friction and regenerative braking based on the amount of wheel slip. See the top of column 4 and column 7 lines 40-50.

Kade et al. lacks a specific discussion of reducing the regenerative braking applied to a rear axle while increasing the non-regenerative braking to a single selected

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wheel of the second axle to maintain the actual vehicle controllability value within a predetermined target value.

However, as discussed above, Kade et al. uses an ABS system to proportion the control of regenerative and friction braking.

One having ordinary skill in the art would have found it obvious at the time the invention was made to have designed the system of Kade et al. to reduce the regenerative braking to the wheels of a first axle, such as the rear wheels, while increasing the friction braking (non-regenerative braking) to a single selected wheel of the front axle, such as a front wheel of the vehicle, during emergency braking or sudden stops to maintain optimal control of the vehicle. As broadly claimed, to determine the vehicle controllability based on at least one measured vehicle controllability value, such as yaw or wheel slip (col. 4 lines 8 and 64 respectively) and at least one predetermined target value, such as vehicle or wheel speed, is inherent in the reference as modified above.

Regarding claim 16 the controller claimed is considered to be an alternate equivalent arrangement to that shown by Kade et al.

Regarding claims 19,20 to have used a measured value of the longitudinal wheel slip ratio or comparing target and actual vehicle tire slip angles would have been obvious to one of ordinary skill in the art at the time the invention was made since it is notoriously well known in the art to use such parameters in the determination of the distribution of braking forces in vehicle stability control/ABS systems. See the discussion at the top of column 4.

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Regarding claims 22-24 the limitations of "greater than 10 percent" and "greater than 5 percent" are relative values and would have been obvious to the ordinary skilled worker in the art in view of the teachings of Kade et al., and as modified above, dependent upon the brake force distribution desired between friction and regenerative braking under particular road and or driving conditions.

Regarding claim 28, simply to have reversed the axles on which the friction or non-regenerative and regenerative brakes are applied would have been obvious to the ordinary skilled worker in the art at the time of the invention dependent upon whether the vehicle is a front or rear wheel driven vehicle.

Regarding claims 29,31 these limitations would have been obvious to the ordinary skilled worker in the art at the time of the invention for increased stability of the vehicle.

4. Claims 17,18,21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kade et al. in view of Tatara et al. (pat no. 6,704,627).

Regarding claim 17 Kade et al. lacks determining lateral acceleration and yaw rate of the vehicle. However note the discussion at the bottom of column 4 of Kade et al. where braking control on the amount of vehicle yaw is discussed.

Tatara et al., discloses a drive force distribution system for a hybrid vehicle where an electric motor provides drive and regenerative braking forces to the rear wheels based upon a number of vehicle conditions which include yaw rate and lateral acceleration. See the discussion on page 2.

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One having ordinary skill in the art at the time of the invention would have found it obvious to have modified the brake system of Kade et al. so that the blending of the brake forces on the axles/wheels thereof is dependent, in part, upon the yaw rate and the lateral acceleration of the vehicle for increased stability thereof.

Regarding claims 18, simply to have reversed the axles on which the friction or non-regenerative and regenerative brakes are applied would have been obvious to the ordinary skilled worker in the art at the time of the invention dependent upon whether the vehicle is a front or rear wheel driven vehicle.

Regarding claim 21 to have determined and compared *target* and *actual* vehicle yaw rates would have been obvious to one of ordinary skill in the art at the time the invention was made since it is notoriously well known in the art to use such vehicle parameters in the determination of the distribution of braking forces in vehicle stability control/ABS systems.

Response to Arguments

Applicant's arguments filed 12/22/03 have been fully considered but they are not persuasive. Applicant's have changed the limitations of the claims and these changes have been addressed in the action above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher P. Schwartz whose telephone number is 703-308-0576. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

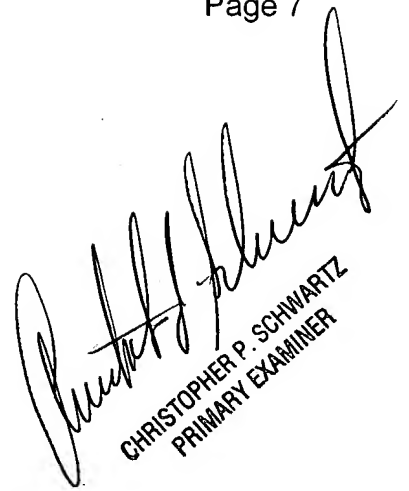
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CHRISTOPHER P. SCHWARTZ
PRIMARY EXAMINER